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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/465,679	12/17/1999	KENYA UOMORI	0819-321	9166
22204	7590	07/14/2004	EXAMINER	
NIXON PEABODY, LLP 401 9TH STREET, NW SUITE 900 WASHINGTON, DC 20004-2128			VU, NGOC YEN T	
			ART UNIT	PAPER NUMBER
			2612	

DATE MAILED: 07/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/465,679

Applicant(s)

UOMORI ET AL.

Examiner

Ngoc-Yen T. Vu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-24 is/are pending in the application.
- 4a) Of the above claim(s) 11-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-10 and 24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Amendment***

1. The amendments, filed on 04/29/2004, have been entered and made of record. Claims 1-5 and 7-24 are pending. Claims 11-23 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected inventions, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 8.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 1-10 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 112***

3. Claim 24 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 24 recites the limitation "the color image" in line 13. There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 103***

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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5. Claims 1-5 and 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Medina (US #5,081,530) in view of Riegl (US #3,830,567), and further in view of Yahav (WO 97/01111).

Regarding claim 1, in figures 1, 2 and 4 Medina '530 teaches a rangefinder for obtaining information about the three-dimensional location of an object by projecting light onto the object and receiving part of the light that has been reflected from the object, the rangefinder comprising:

- a light source (11/21/40) for projecting the light on the object (15/16/22);

- a camera (13/26/43) for receiving the part of the projected light that has been reflected from the object;

- a distance-measuring sensor (Fig. 1, phase detector 17; col. 3 lines 18-33) for measuring the distance to the object, wherein the controller uses the output of the distance measuring sensor as an item of the range information about the object; and

- a controller for controlling exposure conditions of the camera based on range information about the object (col. 2 lines 11-59; col. 3 line 18 – col. 4 line 30; col. 5 lines 3-65).

Claim 1 differs from Medina in that the claim further requires the controller controls optical output power of the light source based on range information about the object. However, the limitation is well known in the art as taught in Riegl. In the same field of endeavor, Riegl '567 teaches a range finder comprising a laser radiation transmitter S, a receiver E and a controller which controls optical output power of the radiation transmitter S (col. 1 line 52 – col. 2 line 4; col. 5 line 48 – col. 7 line 8). Riegl also teaches that the controller controls exposure conditions of a camera based on range information about the object (col. 6 line 58 – col. 7 line

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8). In light of the teaching from Riegl, it would have been obvious to one of ordinary skill in the art at the time the invention was made to control optical output power of the light source (11/21/40) taught in Medina based on range information about the object in order to obtain good accurate ranging with a relatively low power consumption of the light source.

Claim 1 also differs from Medina and Riegl in that the claim further requires a shutter positioned between the light source and the object which can open and close freely and blocks the light that has been projected from the light source when closed, and wherein the controller selectively controls the open and close states of the shutter. The limitation is well known in the art as taught in Yahav (WO 97/01111). In the same field of endeavor, Yahav teaches an apparatus for creating an image indicating distances to objects in a scene comprising a light source (Fig. 15, 40), a shutter (Fig. 15, 44) positioned between the light source and the object which can open and close freely and blocks the light that has been projected from the light source when closed (sheets 42-43), a camera (Fig. 15, camera 190) for receiving part of the projected light that has been reflected from the object, and a controller for controlling the light source and selectively controls the open and closed states of the shutter (sheets 42-43). Yahav teaches that as the shutter (44) is opened, the camera (190) forms a line image of the scene including distance information. In light of the teaching from Yahav, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a shutter positioned between the light source and the object in the three-dimensional camera system of Medina and Riegl, so as to provide distance information of the scene as the shutter is opened.

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As to claim 2, Medina teaches a distance-measuring sensor (Fig. 1, phase detector 17; col. 3 lines 18-33) for measuring the distance to the object, wherein the sensor utilizes reflected ultrasonic waves from the object to measure distance (col. 6 lines 29-31).

As to claim 3, Medina, as modified by Riegl, teaches a range calculator for obtaining a range image based on a video signal output from the camera, wherein the controller uses the range image obtained by the range calculator as an item of the range information about the object (Medina, col. 3 line 50 – col. 4 line 30; col. 5 lines 3-55) (Riegl, col. 1 line 40 – col. 2 line 4; col. 5 line 42 – col. 7 line 8).

As to claim 4, Medina, as modified by Riegl, teaches that if the controller has determined based on the range information that the distance to the object is equal to or greater than a first threshold value (Riegl, Fig. 1, threshold A1), the controller increases the optical output power of the light source, and wherein if the controller has determined based on the range information that the distance is equal to or smaller than a second threshold value (A1), the controller decreases the optical output power of the light source (Riegl, col. 3 line 62 – col. 5 line 42).

As to claim 5, Medina teaches that the exposure conditions of the camera are defined based on at least one of a diaphragm stop, a sensitivity of an imager and a shutter speed (Figs. 1-2, shutter 14/24).

Regarding claim 7, Medina '530 teaches a rangefinder for obtaining information about the three-dimensional location of an object by projecting light onto the object and receiving part of the light that has been reflected from the object, the rangefinder comprising:

a light source (11/21/40) for projecting the light on the object (15/16/22);

a camera (13/26/43) for receiving the part of the projected light that has been reflected from the object; and

a controller for controlling optical output power of the light source and/or exposure conditions of the camera based on information about the level of a video signal output from the camera (col. 2 lines 11-59; col. 3 line 18 – col. 4 line 30; col. 5 lines 3-65).

Claim 7 differs from Medina in that the claim further requires the controller controls optical output power of the light source based on information about the level of a video signal output from the camera. However, the limitation is well known in the art as taught in Riegl. In the same field of endeavor, Riegl '567 teaches a range finder comprising a laser radiation transmitter S, a receiver E and a controller which controls optical output power of the radiation transmitter S (col. 1 line 52 – col. 2 line 4; col. 5 line 48 – col. 7 line 8). Riegl also teaches that the controller controls exposure conditions of a camera based on the level of a video signal output from the camera (col. 6 line 58 – col. 7 line 8). In light of the teaching from Riegl, it would have been obvious to one of ordinary skill in the art at the time the invention was made to control optical output power of the light source (11/21/40) taught in Medina based on range information about the object in order to obtain good accurate ranging with a relatively low power consumption of the light source.

Claim 7 also differs from Medina and Riegl in that the claim further requires a shutter positioned between the light source and the object which can open and close freely and blocks the light that has been projected from the light source when closed, and wherein the controller selectively controls the open and close states of the shutter. The limitation is well known in the art as taught in Yahav (WO 97/01111). In the same field of endeavor, Yahav teaches an

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apparatus for creating an image indicating distances to objects in a scene comprising a light source (Fig. 15, 40), a shutter (Fig. 15, 44) positioned between the light source and the object which can open and close freely and blocks the light that has been projected from the light source when closed (sheets 42-43), a camera (Fig. 15, camera 190) for receiving part of the projected light that has been reflected from the object, and a controller for controlling the light source and selectively controls the open and closed states of the shutter (sheets 42-43). Yahav teaches that as the shutter (44) is opened, the camera (190) forms a line image of the scene including distance information. In light of the teaching from Yahav, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a shutter positioned between the light source and the object in the three-dimensional camera system of Medina and Riegl, so as to provide distance information of the scene as the shutter is opened.

As to claim 8, Medina, as modified by Riegl, teaches that if the controller has determined based on the level information that the distance to the object is equal to or greater than a first threshold value (Riegl, Fig. 1, threshold A1), the controller increases the optical output power of the light source, and wherein if the controller has determined based on the level information that the distance is equal to or smaller than a second threshold value (A1), the controller decreases the optical output power of the light source (Riegl, col. 3 line 62 – col. 5 line 42).

As to claim 9, Medina teaches that the exposure conditions of the camera are defined based on at least one of a diaphragm stop, a sensitivity of an imager and a shutter speed (Figs. 1-2, shutter 14/24).



As to claim 10, Medina teaches a distance-measuring sensor (Fig. 1, phase detector 17; col. 3 lines 18-33) for measuring the distance to the object, wherein the controller uses the output of the distance measuring sensor as an item of the range information about the object.

*Allowable Subject Matter*

6. Claim 24 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

*Conclusion*

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoc-Yen T. Vu whose telephone number is 703-305-4946. The examiner can normally be reached on Mon. – Fri. from 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy R. Garber can be reached on 703-305-4929. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



NGOC-YEN VU  
PRIMARY EXAMINER

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NYV  
07/09/2004